

What is claimed is:

1. An antigenic composition comprising a selected antigen from a pathogenic bacterium, virus, fungus or parasite and an effective adjuvanting amount of a mutant cholera holotoxin, wherein the holotoxin has reduced toxicity compared to a wild-type cholera holotoxin and has a substitution other than aspartic acid for the glutamic acid at position 29 of the A subunit of the cholera holotoxin, wherein said holotoxin enhances the immune response in a vertebrate host to said antigen.)

2. The antigenic composition of Claim 1 comprising more than one antigen.

3. The antigenic composition of Claim 1 wherein the amino acid at position 29 is histidine.

4. The antigenic composition of Claim 1 where the selected antigen is the *Haemophilus influenzae* P4 outer membrane protein, the *Haemophilus influenzae* P6 outer membrane protein, the *Haemophilus influenzae* adherence and penetration protein (Haps), the *Helicobacter pylori* urease protein, the *Neisseria meningitidis* Group B recombinant class 1 pilin (rpilin), the *Neisseria meningitidis* Group B class 1 outer membrane protein (PorA), the respiratory syncytial virus fusion protein, a rotavirus virus-like particle or the herpes simplex virus (HSV) type 2 glycoprotein D (gD2).

5. The antigenic composition of Claim 4 where the selected antigen is the *Haemophilus influenzae* P4 outer membrane protein, the *Haemophilus influenzae* P6 outer membrane protein, the *Haemophilus influenzae* Haps protein or any combination thereof.

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6. The antigenic composition of Claim 4 where the selected antigen is the *Helicobacter pylori* urease protein.

7. The antigenic composition of Claim 4 where the selected antigen is the *Neisseria meningitidis* rpilin, the *Neisseria meningitidis* PorA protein or a combination thereof.

8. The antigenic composition of Claim 4 where the selected antigen is the respiratory syncytial virus fusion protein.

9. The antigenic composition of Claim 4 where the selected antigen is a rotavirus virus-like particle.

10. The antigenic composition of Claim 9 where the virus-like particle is a rotavirus 2/6-virus-like particle.

11. The antigenic composition of Claim 4 where the selected antigen is HSV gD2.

12. The antigenic composition of Claim 11 where the antigenic composition is a polynucleotide vaccine comprising plasmid DNA encoding HSV gD2.

13. The antigenic composition of Claim 1 which further comprises a diluent or carrier.

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14. The antigenic composition of Claim 1 which further comprises a second adjuvant in addition to the mutant cholera holotoxin.

15. The antigenic composition of Claim 1 wherein at least one additional mutation is made to the A subunit of the cholera holotoxin at a position other than amino acid 29.

16. The antigenic composition of Claim 15 wherein the at least one additional mutation is made as a substitution for the arginine at amino acid 7, the aspartic acid at position 9, the arginine at position 11, the histidine at position 44, the valine at position 53, the arginine at position 54, the serine at position 61, the serine at position 63, the histidine at position 70, the valine at position 97, the tyrosine at position 104, the proline at position 106, the histidine at position 107, the serine at position 109, the glutamic acid at position 110, the glutamic acid at position 112, the serine at position 114, the tryptophan at position 127, the arginine at position 146 and the arginine at position 192.

17. A method for increasing the ability of an antigenic composition containing a selected antigen from a pathogenic bacterium, virus, fungus or parasite to elicit the immune response of a vertebrate host, which comprises administering to said host an antigenic composition of Claim 1.

18. A method for increasing the ability of an antigenic composition containing an *Haemophilus influenzae* antigen to elicit the immune response of a vertebrate host, which comprises administering to said host an antigenic composition of Claim 5.

19. A method for increasing the ability of an antigenic composition containing a *Helicobacter pylori* antigen to elicit the immune response of a vertebrate host, which comprises administering to said host an antigenic composition of Claim 6.

20. A method for increasing the ability of an antigenic composition containing a *Neisseria meningitidis* antigen to elicit the immune response of a vertebrate host, which comprises administering to said host an antigenic composition of Claim 7.

21. A method for increasing the ability of an antigenic composition containing a respiratory syncytial virus antigen to elicit the immune response of a vertebrate host, which comprises administering to said host an antigenic composition of Claim 8.

22. A method for increasing the ability of an antigenic composition containing a rotavirus antigen to elicit the immune response of a vertebrate host, which comprises administering to said host an antigenic composition of Claim 9.

23. A method for increasing the ability of an antigenic composition containing a herpes simplex virus antigen to elicit the immune response of a vertebrate host, which comprises administering to said host an antigenic composition of Claim 11.

24. A plasmid containing an isolated and purified DNA sequence comprising a DNA sequence which encode an immunogenic mutant cholera holotoxin having a substitution other than aspartic acid for the glutamic acid at position 29 of the A subunit of the cholera holotoxin, and wherein the DNA sequence is operatively linked to an arabinose inducible promoter.

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25. A host cell transformed, transduced or transfected with the plasmid of Claim 24.

26. A method of producing an immunogenic mutant cholera holotoxin, wherein the cholera holotoxin has reduced toxicity compared to a wild-type cholera holotoxin and has a substitution other than aspartic acid for the glutamic acid at position 29 of the A subunit of the cholera holotoxin, which comprises transforming, transducing or transfecting a host cell with the plasmid of Claim 24 and culturing the host cell under conditions which permit the expression of said recombinant immunogenic detoxified protein by the host cell.

27. Use of effective adjuvanting amount of a mutant cholera holotoxin, wherein the holotoxin has reduced toxicity compared to a wild-type cholera holotoxin and has a substitution other than aspartic acid for the glutamic acid at position 29 of the A subunit of the cholera holotoxin, in combination with a selected antigen from a pathogenic bacterium, virus, fungus or parasite, to prepare an antigenic composition, wherein said holotoxin enhances the immune response in a vertebrate host to said antigen.